

REMARKS

Claims 14-18 have been canceled. Applicants affirm election, without traverse, of Group I (Claims 1-13 and 19-35). New claims 36-40 have been added. Claims 1-13 and 19-40 are now pending. Reconsideration of the application is requested.

Claims 22 and 32 were objected to because of a noted informality relating to a chemical abbreviation spelling mistake. Non-narrowing amendments have been made to claims 22 and 32 to correct the noted informality.

Claim 3 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Applicants have amended the claim to recite “anisotropic” etching using TMAH or KOH solution (see, Specification, Paragraph 30).

Claims 1, 28-29 and 33-35 were rejected under 35 U.S.C. 102(b) as being anticipated by Yoshino. Applicants respectfully traverse.

Yoshino discloses a process for forming micro conductor channels. In Yoshino, polychrystalline silicon 67 completely fills the formed trench 65. The polysilicon micro conductor channel 67 is then covered by LOCOS layer 64. There is no teaching or suggestion in Yoshino for the claimed process which forms fluid microchannels (i.e., channels having the shape of open tunnels that are not completely filled with semiconductor material and thus would allow, for example, for fluidic handling therein). In the context of the claimed invention, a “fluid microchannel” is not in any way an open trench-like structure, but rather Applicants specifically define herein such a structure as claimed to be a tunnel-like structure as shown in the drawings of the application wherein the surface port is closed along a certain length of the fluid microchannel. Claim 1 is accordingly not anticipated by Yoshino.

Claim 28 has been amended in a similar manner to emphasize a fluid microchannel and closure of the top port opening along a certain length of the trench.

Claims 1-5 were rejected under 35 U.S.C. 102(e) as being anticipated by Kudelka. Applicants respectfully traverse.

Kudelka teaches methods for expanding trenches using wet etches. Contrary to the Examiner's statement, the deep trenches or cavities in Kudelka do not resemble the claimed fluid microchannels in any way. Most specifically, because the trenches and cavities in Kudelka do not have the top or port openings covered or filled along a certain length so as to retain fluid microchannels (i.e., channels having the shape of open tunnels that are not completely filled with semiconductor material and thus would allow, for example, for fluidic handling therein). The claim recites that the fluid microchannels are "nearly entirely buried." The Examiner points to the trenches 210 in Figure 17 of Kudelka as meeting this limitation. Applicant respectfully disagrees as Figure 17 clearly shows that no effort is being made in Kudelka to close the trench openings and thus form "nearly entirely buried" fluid microchannels wherein the surface port is closed along a length of the fluid microchannel. Claims 1-5 are accordingly not anticipated by Kudelka.

Claims 6-13 and 19-32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kudelka in view of Urakami or Jun. Applicants respectfully traverse and assert that these claims are patentable over the art for at least the reasons recited above. Applicants further point out that neither Urakami nor Jun teach or suggest and fluid microchannel (tunnel-like) structures, as claimed, where port openings are closed along a certain length of the microchannel (or trench).

With respect to Urakami, the Examiner cites to Figure 14C and col. 16, lines 13-19. Figure 14C clearly shows an open (i.e., not covered or closed trench). No effort is made in Urakami to close the port of the trench along a certain length thereof and tunnel-like fluid microchannel structure is formed.

With respect to Jun, the Examiner cites to Figures 2E and 27 and col. 5, lines 1-27. Figures 2E and 2F clearly show that material 203 has completely filled the trenches. There is no fluid microchannel present in Jun.

Applicants would lastly point out that the references cited by the Examiner appear to be directed to forming buried regions in the semiconductor structure. Such regions, which are filled with the desired semiconductor materials, are NOT fluid microchannels in any way. They are not tunnel-like in character and thus cannot handle fluids therein. The references are accordingly asserted by Applicants to be irrelevant to the claimed invention.

In view of the foregoing, it is believed that this application is in condition for allowance.

Respectfully submitted,

JENKENS & GILCHRIST, P.C.

Andre M. Szuwalski

Registration No. 35,701

Date: December 6, 2005

1445 Ross Avenue, Suite 3700
Dallas, Texas 75202-2799
(Direct) 214/855-4795
(Fax) 214/855-4300